1　　1. A method for processing a data signal comprising:

2　　　　accepting a protocol specification that includes

3　specification of a plurality of elements, each

4　specification including a length and a name, wherein the

5　specifications of at least some of the elements are in

6　terms of sequences of other of the plurality of elements,

7　and the specification of at least some of the elements

8　includes a specification of an action;

9　　　　accepting a series of data packets formed from the

10　data signal;

11　　　　for each accepted packet, associating portions of

12　the input packet with elements specified in the protocol

13　specification; and

14　　　　for each of the associated portions of the input

15　packet, performing actions included in the specification of

16　elements associated with that portion of the input packet.

1　　2. The method of claim 1 wherein the specification of

2　an action includes a specification of a programming

3　language statement, and wherein performing actions included

4　in the specification of elements includes executing the

5　programming language statement.

1   3. The method of claim 2 further comprising processing
2   the protocol specification to produce executable software,
3   and wherein execution of the software implements the
4   functions of associating portions of input packets with
5   elements specified in the protocol specification and
6   performing actions associated with elements specified in
7   the protocol specification.

1   4. The method of claim 2 wherein the protocol
2   specification includes an object-oriented specification of
3   elements, wherein names of components of an element are
4   local to that element.

1   5. The method of claim 2 wherein the protocol
2   specification includes an association of numerical values
3   and symbolic names for an element.

1   6. The method of claim 1 further comprising processing
2   the protocol specification to produce a hardware
3   description, and wherein performing actions included in the
4   specification of elements includes sending a message
5   identifying a specified action.